



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/786,837	08/06/2001	Wolfgang Dultz	2345/144	6547
26646	7590	04/02/2004	EXAMINER	
KENYON & KENYON ONE BROADWAY NEW YORK, NY 10004			STULTZ, JESSICA T	
			ART UNIT	PAPER NUMBER
			2873	
DATE MAILED: 04/02/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/786,837	Applicant(s) DULTZ ET AL.	
	Examiner Jessica T Stultz	Art Unit 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 12-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-15 and 17-21 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____.   | 6) <input type="checkbox"/> Other: ____.                                    |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

For applicant's information, it is noted that an IDS was filed August 6, 2001 with the filing of the US application, however, this document has not been scanned into the system and therefore was not considered.

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 5 and 6. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claims 12-15 and 17-19 objected to because of the following informalities: in claims 12-15 and 17-19, "spatial light modular" should be "spatial light modulator"; in claim 13, "range, an at least one" should be "range, and at least one"; in claim 18, "into an at least one" should be "into at least one". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 12-14 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Maeda et al.

Regarding claim 12, Maeda et al discloses a method of forming the intensity profile of a laser beam (Shown in Figure 37), comprising: providing the laser beam (Column 9, lines 21-44, wherein the laser beam is emitted from SHG “300”, Figure 15) that the laser beam strikes an optically addressable spatial light modulator (Column 9, lines 21-44, wherein the laser beam is inputted into modulator “304”, Figure 15), the optically addressable spatial light modulator having a local transmission property (Column 9, lines 21-44, wherein the modulator transmits the light, Figure 15) depending nonlinearly on a local illumination intensity (Column 20, lines 5-25, wherein the input and transmitted intensities have a non-linear relationship, Figure 37).

Regarding claim 13, Maeda et al further discloses the local transmission property of the optically addressable modulator has a saturation range, and the locally transmitted intensity of the laser beam in the saturation range is substantially independent of a locally incident intensity of the laser beam outside the saturation range (Column 20, lines 5-25, wherein the saturation range is shown by the flat light spot “400”, Figure 37).

Regarding claim 14, Maeda et al further discloses the intensity of the beam to be formed is adapted to the saturation range of the optically addressable spatial light modulator by at least one of a widening of the laser beam and an optical filter (Column 9, lines 21-44, wherein a beam expander “307” and an optical filter “308” are used to adapt the beam to the saturation range of the modulator, Figure 15).

Regarding claim 19, Maeda et al discloses a device for forming the intensity profile of a laser beam (Shown in Figure 37), comprising: an optically addressable spatial light modulator (Column 9, lines 21-44, wherein the laser beam is inputted into modulator “304”, Figure 15) the optically addressable spatial light modulator having a local transmission property (Column 9,

Art Unit: 2873

lines 21-44, wherein the modulator transmits the beam, Figure 15) depending nonlinearly on a local illumination intensity (Column 20, lines 5-25, wherein the input and transmitted intensities have a non-linear relationship, Figure 37), configured to spatially widen the laser beam (Column 9, lines 21-44, wherein a beam expander "307" and an optical filter "308" are used to widen the beam, Figure 15).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15, 17-18 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al in view of Mitsuoka et al.

Regarding claim 15, Maeda et al discloses a device and method for forming an intensity profile of a laser beam as disclosed above wherein the spatial light modulator is located in the optical path (Shown in Figure 15, wherein the modulator "304" is in the optical path of the beam), but does not specifically disclose inserting an optical imaging system into an optical path of rays for beam widening. Mitsuoka et al teaches of modulating a laser beam with a spatial light modulator (Column 28, lines 9-23, wherein the laser beam "405" is modulated by modulator "468", Figure 17) and inserting an optical imaging system into an optical path of rays for beam widening (Column 27, line 66-Column 28, line 37 and Column 30, lines 14-61, wherein the photographing system "466" is the optical imaging system and the beam is widened by filter array "44" and lens array "47", Figures 16 and 17) for the purpose of providing a Fourier

Art Unit: 2873

transformed image to display (Column 28, lines 9-37). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made for the device and method of forming an intensity profile of a laser beam of Maeda et al to further include inserting an optical imaging system into an optical path of rays for beam widening. Mitsuoka et al teaches of modulating a laser beam with a spatial light modulator and inserting an optical imaging system into an optical path of rays for beam widening for the purpose of providing a Fourier transformed image to display.

Regarding claims 17-18 and 20-21, Maeda et al discloses a device and method for forming an intensity profile of a laser beam as disclosed above, but does not specifically disclose that the spatial modulator is a liquid crystal modulator having at least one zone which is able to be electrically driven to alter the transmission property of the light modulator. Mitsuoka et al teaches of a modulating a laser beam with a liquid crystal spatial light modulator having at least one zone with which is electrically driven (Column 28, lines 9-23, wherein the laser beam "405" is modulated by modulator "468", which is made of liquid crystal material and is electrically addressable, Figure 17) to alter the transmission property of the light modulator (Column 28, line 9-23, wherein the light modulator is a transmission type modulator) for the purpose of forming Fourier-transformed images (Column 28, lines 9-23). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made for the device and method of forming an intensity profile of a laser beam of Maeda et al to further include the spatial modulator be a liquid crystal modulator having at least one zone which is able to be electrically driven to alter the transmission property of the light modulator since Mitsuoka et al teaches of a modulating a laser beam with a liquid crystal spatial light modulator having at least one zone

Art Unit: 2873

with which is electrically driven to alter the transmission property of the light modulator for the purpose of forming Fourier-transformed images.

***Allowable Subject Matter***

Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowable subject matter: none of the prior art alone or in combination disclose or teach of the claimed combination of limitations to warrant a rejection under 35 USC 102 or 103.

Regarding claims 16, none of the prior art alone or in combination disclose or teach of a method of forming an intensity profile as disclosed above specifically including a first and second telescope imaging system with a zooming system to adjust or vary the widening of the laser beam based on an intensity change.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sakata, Akiyama et al, and Jensen are cited as being some similar structure to the claimed invention since they all disclose nonlinear intensity relationships of lasers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica T Stultz whose telephone number is (571) 272-2339. The examiner can normally be reached on M-F 8-4:30.

Art Unit: 2873

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jessica Stultz  
Patent Examiner  
AU 2873  
March 10, 2004



JORDAN SCHWARTZ  
PRIMARY EXAMINER